






# NICHOLAS A. ZIMMERER

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 nzimm.net  
 github.com/nzimm

## EDUCATION

2014 – 2019 **Bachelor's Degree, Computer Science (3.3/4.0)** **University of Colorado**

2018 – 2020 **Master's Degree, Interdisciplinary Telecom (3.7/4.0)** **University of Colorado**  
Focus in Network Security

## EXPERIENCE

5/2017 – present **Software Engineer** **Laboratory for Atmospheric and Space Physics**  
Updated and debugged legacy ground software handling 100+ telemetry plots daily  
Refactored software to process burst data for Magnetospheric Multiscale Mission  
Interviewed candidates for student software developer positions  
Designed and taught lectures on scripting and security for summer training  
Python / Bash / Red Hat Linux / SUSE Linux

5/2016 – 5/2017 **Linux System Administrator** **Office of Information Technology, CU Boulder**  
Managed 50+ researcher user accounts on machines distributed across campus network  
Built and maintained Red Hat 6 Linux machines for campus clients  
Installed and configured obscure scientific packages from source  
Bash / Red Hat Linux

8/2019 – 12/2019 **Teaching Assistant** **Ethical Hacking, CU Boulder**  
part time  
Graded assignments and answered student questions  
Taught lectures when course professor was unavailable  
C / Python / PHP

## PROJECTS

Undergraduate Capstone **Blockchain Attack Detection**  
Developed monitoring and alerting infrastructure for 51% attacks on cryptocurrency blockchains  
Tracked publishing of blocks and chain reorganizations in real time  
Implemented custom blockchain and API for testing and live demonstration  
Python / Django / Flask / Google Cloud Platform

LASP **Introduction to Linux and Security CTF** **github.com/nzimm/simple-CTF**  
Designed 15 level CTF to teach the Linux command line and security concepts  
Automated challenge deployment to enable rapid level resets  
Crafted shellcode by hand to invoke level advancement program  
Bash / C / x86 Assembly / Linux

Personal **Image Steganography Program** **github.com/nzimm/png-stego**  
Implemented LSB algorithm to encode arbitrary messages into pixel data of PNG file format  
Prototyped a simple graphical application to illustrate the difficulty of naked eye detection  
Python / Python Image Library / PyQt

Thesis project **Conjure** **https://refraction.network/**  
Currently involved in engineering and deployment of Conjure stations  
Refraction Networking integrates anticensorship technology into the Internet's core infrastructure  
Conjure is third generation, building upon TapDance which has been deployed to an ISP  
Go / Redis

## ACTIVITIES

**T9 Hackathon, 2017** - Finalist  
**Cisco Hackathon, 2018** - First place  
**Theta Tau Fraternity, 2018** - President

## HOBBIES

Coffee  
Rock climbing  
Competitive Hacking

## FAVORITE PASSWORDS

BaldursGateway  
StillPlayAngband  
SpeakFriendAndEnter